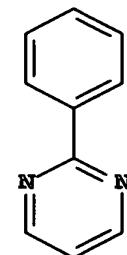
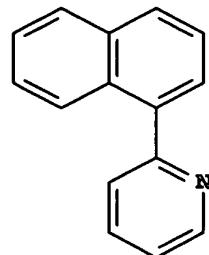
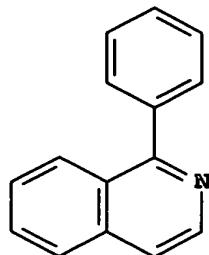
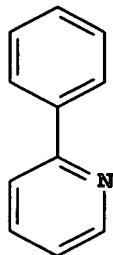
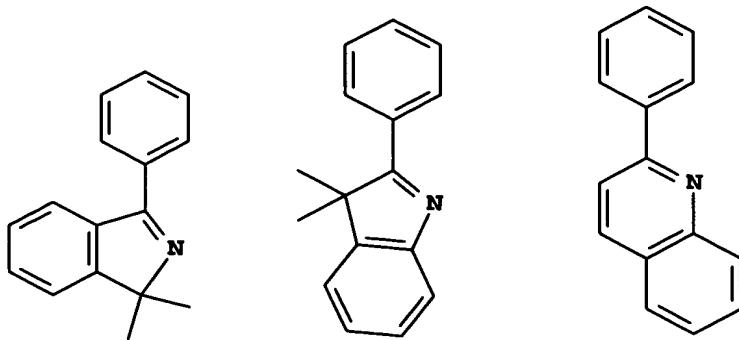


What is claimed is:

1. A process for forming an organometallic cyclometallated complex comprising the step of reacting, in an aprotic organic solvent, an organozinc complex of a desired organic ligand with a metal complex of an element of atomic number 74 to 79 bearing a leaving group.
2. The process of claim 1 wherein the element of atomic number 74 to 79 is platinum.
3. The process of claim 1 wherein the element of atomic number 74 to 79 is iridium.
4. The process of claim 1 wherein the ligand is a monoanionic ligand that can be coordinated to a metal through an sp^2 carbon and a heteroatom.
5. The process of claim 4 wherein the ligand includes an aromatic ring and a heterocyclic ring.
6. The process of claim 5 wherein the heterocyclic ring includes a nitrogen for coordinating to the metal of the metal complex.
7. The process of claim 6 wherein the ligand includes at least one chosen from among the following:





8. The process of claim 1 wherein the solvent comprises an ether, an alkyl halide, a polar aprotic solvent, or a nitrile group.

9. The process of claim 8 wherein the solvent comprises tetrahydrofuran, methylene chloride, or a mixture of the two.

10. The process of claim 8 wherein the solvent is substantially free of water.

11. The process of claim 1 wherein the metal complex includes from 1 to 6 leaving groups.

12. The process of claim 11 wherein one or more of the leaving groups are monodentate.

13. The process of claim 11 wherein one or more of the leaving groups are bidentate.

14. The process of claim 11 wherein one or more of the leaving groups are neutral.

15. The process of claim 14 wherein the leaving groups include pyridine, diethyl sulfide, diethyl ether, dimethylsulfoxide, or tetrahydrofuran.

16. The process of claim 11 wherein one or more of the leaving groups have a -1 charge.

17. The process of claim 16 wherein the leaving groups include chloride, bromide, iodide, fluoride, acetate, acetylacetate, trifluoromethanesulfonate, or methoxide.

18. The process of claim 1 wherein the organozinc complex is formed from a zinc salt and an organolithium compound.

19. The process of claim 1 wherein the organozinc complex is formed from a zinc salt and a Grignard reagent.

20. The process of claim 1 wherein the organozinc complex is formed from elemental zinc and an organohalide.

21. The process of claim 1 wherein the reaction is performed at room temperature or higher.

22. The process of claim 1 wherein the reaction is performed under an inert atmosphere.

23. The process of claim 1 wherein a subsequent step converts the resulting isomer into a different isomer.

24. The process of claim 23 wherein the conversion is effected by heat or irradiation.

25. The process of claim 1 wherein the organozinc complex is represented by formula 1 or 2:



wherein Y is an anion and R is a monoanionic ligand that can be coordinated to a metal through a carbon and a heteroatom.

26. The process of claim 1 wherein the metal complex of an element of atomic number 74 to 79 is represented by Formula 3:



wherein:

M represents a transition metal of atomic number from 74 to 79;

L represents a cyclometallating ligand;

m is 0, 1, or 2;

each X represents an independently selected leaving group; and

n is from 1 to 6.